REMARKS

Claims 1-24 are all the claims presently pending in the application. Claims 8- 9 are amended to more clearly define the invention. Claims 1, 9-10, 12, 14-17, and 24 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicant also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicant's intent is to encompass equivalents of all claim elements.

Applicant gratefully acknowledges the Examiner's indication that claims 1-8, 10-13, and 16-24 are allowed and that 9 would be allowable once the objection is overcome. However, Applicant respectfully submits that all of the claims are allowable.

Claims 14-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Bastiani et al. reference in view of the Cote et al. reference.

This rejection is respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

A first exemplary embodiment of the claimed invention, as defined by independent claim 14, is directed to a communication method for a network node attached to a serial bus. The method includes setting a state machine in a receive mode, exchanging signals between the network node and a remote node attached to a distant end of the bus and determining a turnaround time between the nodes based upon the turnaround time of the signals between the network node and the remote node, and setting the state machine in an idle mode for an

interval beginning with an end timing of a packet transmitted from the node to the bus until the interval corresponds to the turnaround time.

A second exemplary embodiment of the claimed invention, as defined by independent claim 15, is directed to a communication method for a network node attached to a serial bus. The method includes setting a state machine in a receive mode, incrementing a time count value beginning with a start timing of a child notify signal transmitted from the node to the bus and terminating the increment of the time count value at an end timing of a parent notify signal received by the node from the bus, and setting the state machine in an idle mode for an interval beginning with an end timing of a packet transmitted from the node to the bus until the interval corresponds to the incremented time count value.

Conventional parent/child networks, such as IEEE-1394 standard networks, an example of which is shown in Fig. 4A - 4D, have certain difficulties. These difficulties may primarily be due to a communication length which is longer than 4.5 meters which may require the use of 8B/10B block codes. For example, as shown in Fig. 5A, as long as the length of the Data Prefix D4 is greater than the turnaround time, then contention is prevented between the packet P5 and the Grant signal G3. Further, in order for a packet from the root node 2 to be transmitted without encountering the Request signal R2, it is necessary that the length of the Data Prefix D3 is greater than the turnaround time between nodes 2 and 3.

One of the problems for these conventional networks is the likelihood of a situation in which a Request signal remains asserted (i.e. is not canceled) in a longer than 4.5 meter bus section and contends with other signals. For example, as shown in Figs. 8A - 8C, if the data length of the packet from node 3 to node 4 is shorter than the distance between nodes 3 and 4, then node 3 will receive a "ghost" request signal from node 4, which prevents node 1 from

receiving an acknowledgment signal from node 4 indicating receipt of the packet by node 4.

The cause of this problem is illustrated by the timing diagram of Fig. 9, which shows that node 3 transitions from the Idle state into a Request state because of the receipt of a Request signal from node 4 despite the fact that node 3 has transmitted a data packet to node 4. Therefore, even though node 4 receives the data packet and sends an acknowledgment signal to node 3, node 3 ignores the acknowledgment signal because node 3 is in a Request state and is waiting for a Grant signal from node 2.

The present invention solves these problems by ensuring that the transceiver in the network maintains an Idle state for a period of time that corresponds to the turnaround time between other nodes.

In other words, the present invention recognizes the relationship between the time period for which the Idle state should be maintained and the measured, actual turnaround time.

II.   THE PRIOR ART REJECTION

The Examiner alleges that the Cote et al. reference would have been combined with the Bastiani et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including: 1) setting a state machine in an Idle mode for an interval that corresponds to a turnaround time for signals exchanged between a network node and a remote node (claim 14); and 2) setting a state machine in an Idle mode for an interval that

corresponds to an incremented time count value that is based upon a start timing for a child

notify signal transmitted from a node to a bus and an end timing for apparent notify signal

received by the node from the bus (claim 15).

The Bastiani et al. reference clearly does not teach or suggest these features. Rather,

as explained before, the Bastiani et al. reference merely discloses forcing a device to wait for

an arbitrarily assigned, predetermined turnaround time between the time of receiving a signal

and responding to the signal to ensure that the bus line has settled and to provide enough time

for the other one of the slave/host to activate its receiver (col. 24, lines 19-27 and col. 42,

lines 31-42).

In other words, the Bastiani et al. reference forces a device to wait before that device

is permitted to "turnaround" a received signal and to provide a return signal. That period

being an arbitrarily assigned amount of time and corresponding to the amount of time that is

required to pass before a local device is permitted to "turnaround" a signal and send a

response.

The Bastiani et al. reference explains that the "turnaround" time corresponds to an

interval of time which is sufficient to ensure that the bus line has settled and to provide

enough time for the other one of the slave/host to activate its receiver.

Therefore, the "turnaround" time that is referred to by the Bastiani et al. reference is

completely different and unrelated to the "turnaround" time which is discussed in the context

of the present invention and as defined by the claims.

The "turnaround" time for the claimed invention is a turnaround time for signals

exchanged between a network node and a remote node and/or an incremented time count

value that is based upon a start timing for a child notify signal transmitted from a node to a

bus and an end timing for apparent notify signal received by the node from the bus.

The "turnaround" time that is disclosed by the Bastiani et al. reference does not correspond to the claimed turnaround time.

Therefore, the Bastiani et al. reference also does not teach or suggest setting a state machine in an Idle mode for an interval that corresponds to a turnaround time for signals exchanged between a network node and a remote node (claim 14); and 2) setting a state machine in an Idle mode for an interval that corresponds to an incremented time count value that is based upon a start timing for a child notify signal transmitted from a node to a bus and an end timing for apparent notify signal received by the node from the bus (claim 15).

Rather, the Bastiani et al. reference discloses a completely different and unrelated "turnaround" time for which a node waits before "turning around" a signal that has been received.

The Cote et al. reference does not remedy the deficiencies of the Bastiani et al. reference.

Firstly, the "turnaround" times which are disclosed by the Cote et al. reference are completely different and unrelated to the "turnaround" time which is disclosed by the Bastiani et al. reference.

As explained above, the "turnaround" time which is disclosed by the Bastiani et al. reference corresponds to an amount of time that a device will wait before that device is permitted to "turnaround" a received signal by providing a return signal to ensure that the bus line has settled and to provide enough time for the other one of the slave/host to activate its receiver.

In stark contrast, the "turnaround" time that is disclosed by the Cote et al. reference is

based upon an amount of time between when a message is sent and a message is received via

a remote node. In other words, the "turnaround" time that is discussed by the Cote et al.

reference is a "round-trip" time (col. 7, lines 21 - 25) which is the amount of time that elapsed

between when a message was sent and a reply to that message was received.

Therefore, since the "turnaround" times of each of these references are completely

different and unrelated, one of ordinary skill in the art would not have been motivated to

modify the disclosure of the Bastiani et al. reference to force the local device to wait a period

of time before sending a reply signal for a period of time that is based upon a measured

amount of time that it took to receive a reply from a remote node as disclosed by the Cote et

al. reference as alleged by the Examiner. These two "turnaround" times are completely

unrelated and are not interchangeable.

Secondly, contrary to the Examiner's allegation, one of ordinary skill in the art would

not have been motivated to modify the "turnaround" time of the Bastiani et al. reference

based upon the method of determining the (completely different) "turnaround" time that is

disclosed by the Cote et al. reference to "provide [a] more accurate and efficient system and

subsequent collisions are avoided." (Page 3, lines 14-15, August 5, 2005, Office Action).

The purpose for determining the "turnaround" time that is disclosed by the Cote et al.

reference is for the purpose of comparing the measured "turnaround" time with a reference

round-trip time and if the round trip time ("turnaround" time) is excessive a determination

may then be made that the link between the local node and the remote node is deficient (col.

4, lines 14 - 22).

In other words, none of the applied references teaches or suggests that the alleged

modification of substituting the "round trip" time that is disclosed by the Cote et al. reference

for the "turnaround" time of the Bastiani et al. reference would improve efficiency and

accuracy or avoid collisions.

Rather, such an alleged modification would render the system that is disclosed by the

Bastiani et al. reference inoperable for its intended purpose.

The Bastiani et al. reference causes the local node to wait until an amount of time

passes which will ensure that the line has settled and the remote node has activated its

receiver.

None of the applied references teaches that there is any connection and/or correlation

at all between the amount of time that a signal takes to make a round trip between the local

node and the remote node and back again as disclosed by the Cote et al. reference and the

amount of time that it would take for a line to settle and for a remote node to activate its

receiver.

Indeed, the Examiner's alleged modification would render the system disclosed by the

Bastiani et al. reference inoperable because the amount of time that the local device waits

before (turning around a received signal) would no longer have anything to do with a line

settling time and a time for the remote node to activate its receiver. Thus, altering this wait

period to correspond to a measured "round trip" time as alleged by the Examiner would

render the system that is disclosed by the Bastiani et al. reference inoperable.

At the very least, the Examiner's alleged modification would change the principal of

operation of the system that is disclosed by the Bastiani et al. reference.

Therefore, contrary to the Examiner's allegation, one of ordinary skill in the art would

not have been motivated to substitute the measured "round-trip" (turnaround) time that is

disclosed by the Cote et al. reference for the "wait" (turnaround) time that is disclosed by the

Bastiani et al. reference.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims
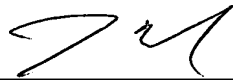
14-15.

III.   FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that

claims 1-24, all the claims presently pending in the Application, are patentably distinct over

the prior art of record and are in condition for allowance. The Examiner is respectfully

requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance,

the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit

any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 11/7/05

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